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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/343,863	06/30/1999	WARREN S. BEITSCHER	10980689-1	8414

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EXAMINER	
GENCO, BRIAN C	

ART UNIT	PAPER NUMBER
2615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/343,863	BEITSCHER, WARREN S.	
	Examiner	Art Unit	
	Brian C Genco	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-10,12-14,16-20 and 22-31 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 22-30 is/are allowed.

6)☒ Claim(s) 1-10,12-14 and 16-20 is/are rejected.

7)☒ Claim(s) 31 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Applicant's amendment filed July 12, 2004 has been fully considered by the Examiner but is not deemed persuasive.

Applicant argues the Examiner misread the Kawamoto and a misapplied its teachings. Applicant argues that "In the Examiner's example, lines 1, 3, and 5 lie at a right angle to the image frame's first dimension and along the entire length of the image frame's second dimension. Thus, any array arranged to scan lines 1, 3, and 5 would be forced to move through the entire second dimension, because moving through only a portion of the second dimension would leave a portion of lines 1, 3, and 5 un-scanned. Therefore, Kawamoto does not teach 'a plurality of high resolution sensor arrays ... moved through only portions of said second dimension' and the combination of Mutze and Kawamoto can not establish a prima facie case for rejecting claim 1."

In response, Examiner notes that both Mutze and Kawamoto disclose a sensor spanning a first dimension and an actuator for moving the sensor through a second dimension. In particular, Examiner notes Fig. 2 of Mutze and Fig. 1 of Kawamoto clearly illustrates this.

Examiner does not understand Applicant's confusion that in the example "lines 1, 3, and 5 lie at a right angle to the image frames first dimension along the entire length of the image frames second dimension." Examiner notes that the example presented in the previous office action is a table illustrating that if two sensors are utilized then they will each traverse only portions of the second dimension. In particular, the first sensor, which spans a first dimension and travels through a second dimension via an actuator, would scan lines 1, 3, and 5 and not need to travel over line 6 since the second sensor, which spans a first dimension and travels through a second dimension via an actuator, would scan the last line. Likewise, the second scanner would

not need to travel over line 1 since the first sensor would scan the first line. The table in no way implies that the lines are "at a right angle to the image frames first dimension along the entire length of the image frames second dimension" as suggested by Applicant.

Further, Examiner notes that the Kawamoto reference was used solely to teach that multiple sensor arrays can be used so as to scan the second dimension faster. Examiner notes that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As all of Applicant's arguments have been answered the rejection previously presented is herein repeated bellow.

Double Patenting

Claim 31 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 30. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). In amending around the 35 U.S.C. 112 rejection of claim 31 the Applicant has amended the claim to be a duplicate of claim 30. Examiner notes that it appears that Applicant had wanted to claim the embodiment illustrated in Fig. 7 in claim 30 and the embodiment illustrated in Fig. 8 in claim 31, however both claims 30 and 31 are claiming the embodiment

illustrated in Fig. 7. As such, Examiner requires Applicant to either cancel claim 31 or to amend it so as to claim the embodiment illustrated in Fig. 8.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3 - 6, 9, 10, 12-14, and 16-18 are rejected under 35 U.S C. 103(a) as being unpatentable over Mutze (DE 4100400 Al) in view of Kawamoto et al. (U.S. Patent 5, 920, 063).

Regarding Claim 1, Mutze discloses:

- Two-dimensional image plane (Figure 2 item 25);
- High-resolution image sensor spanning a first dimension (Figures 1 and 2 item 20, see Abstract);
- Actuator for moving the high-resolution image sensor through a second dimension of the image plane (Figures 1 and 2 items 16 - 19);
    - o While sensor array acquires image data at discrete distance intervals of said second dimension, thereby enabling camera to acquire image data at discrete intervals along an entirety of said image plane.
- A control board for receiving said image data from said sensor array (e.g., Examiner notes that on page 7, lines 12-14 of the translation Mutze discloses scanning electronics for receiving said image data from the sensor arrays, a digitizer for receiving said image data from the sensor arrays from the scanning electronics, an interface for receiving said image data from the sensor arrays from

the digitizer, and further a personal computer for receiving said image data from the sensor arrays from the interface wherein each of the above is a control board);

Mutze fails to disclose:

- A plurality of (i.e. two or more) high resolution sensor array spanning a first dimension of said image plane;
- Wherein said plurality of sensor arrays are moved through only portions of said second dimension of said image plane to more rapidly complete image data acquisition at discrete intervals along the entirety of said image plane.

Kawamoto teaches: A plurality of (i.e. two or more) sensor arrays spanning a first dimension of said image plane (Column 1 lines 41 - 52);

- Thereby providing a plurality of sensor arrays, wherein said plurality of sensor arrays are moved through only portions of said second dimension of said image plane to more rapidly complete image data acquisition at discrete intervals along the entirety of said image plane.
- Kawamoto further teaches that "two linear sensor arrays ... may be employed" (column 5, lines 15-20). Examiner notes that with two linear sensor arrays all of the lines can be scanned without having the second sensor move over the first line and without having the first sensor move over the last line as illustrated bellow.

Sensor line number:	1	2	3	4	5	6
Sensor 1 scan lines:	1		1		1	
Sensor 2 scan lines		2		2		2

More particularly, the second sensor array would being scanning on line 2 and move through only the portion of the sensor array from line 2 through the end of

the sensor array and beyond. Further, the first sensor array would begin moving from in front of the first line and scan only the portion through to the second to last line, line 5 in the above illustrated example.

Such an arrangement would be advantageous in providing an image sensing device capable of sensing image information at a higher scanning speed and thus for a shorter time period.

Therefore, it would have been obvious to one of ordinary skill in the art to configure Mutze to include the plurality of high resolution sensor arrays spanning a first dimension of said image plane thereby providing a plurality of high resolution sensor arrays, wherein said plurality of sensor arrays are moved through only portions of said second dimension of said image plane to more rapidly complete image data acquisition at discrete intervals along the entirety of said image plane so as to provide a higher scanning speed.

Regarding Claim 3, Mutze discloses:

- Image is remotely located from said camera (image is picked up by the photographic reflex camera, "Spiegelreflexkamera" and would thus, inherently be remotely located from the camera);

Regarding Claim 4,

- Images to be photographed by a camera such as that in Mutze clearly change with time since such cameras are used to photograph a variety of subjects.

Regarding Claim 5, Mutze discloses:

- Sensor array comprises a charge coupled device (Abstract "CCD-Zeilensensor 20");

Regarding Claim 6, Mutze discloses:

- Providing a high resolution image using a sensor having at least 1000 pixels (See page 8 of the translation).

Kawamoto discloses:

- A "large number" of pixels is used (column 3, line 1)

Mutze and Kawamoto fail to specifically disclose:

- CCD comprises more than 1000 pixels;

OFFICIAL NOTICE:

- CCD line sensor comprising more than 1000 pixels is well known within the art.

Such an arrangement of using a CCD line sensor with more than 1000 pixels would be advantageous in providing a high resolution image.

Therefore, it would have been obvious to include the CCD line sensor with more than 1000 pixels so as to provide a high resolution image.

Regarding Claim 9, Mutze discloses:

- Rotary actuator for rotating the sensor arrays through the second dimension of said image plane (Figure 2 items 16 - 19, causes the image sensor within the

carriage, or saddle, to move linearly along the second dimension through the use of the motor, spindle, saddle and rails by rotating the spindle through the force created by the motor, the spindle causing the carriage to move linearly along the second dimension),

- Wherein the rotation enables the sensor array to acquire image data at closely spaced intervals across the entirety of the image plane (see above).

In the combination of Mutze and Kawamoto it would have been obvious to similarly rotate each of the arrays since in Kawamoto each array is caused to move across a portion of the image plane.

Regarding Claim 10, Mutze discloses

Said sensor array and actuator are part of a package that has been retrofitted into the digital camera (abstract, Column 2 lines 14 – 22; page 3 of the translation).

Regarding Claim 12, Mutze discloses the method comprising the steps of

- Directing light from a remotely located image towards an image plane (it is inherent to direct light to an image plane, Figure 2 item 25) within a digital camera (see page 7, lines 12-14 of the translation),
    - Wherein the image plane is a two-dimensional space in said camera toward which light from said image is directed (Figure 2 item 25),
- Deploying a high resolution one dimensional sensor array which spans the first dimension of the image plane across said second dimension of said image plane

(Figure 2 items 16 - 20, show the parts needed to move the moving line sensor through the second dimension);

- Converting the light received by said one-dimensional sensor array into digital image data acquired in two dimensions along the entirety of said image plane and generating two dimensional image data (accomplished using the CCD line sensor 20 moving through the image plane 25 through the use of the motor 16, spindle 17, saddle 18 and guide rails 19),

Mutze fails to specifically disclose:

- Deploying a plurality of arrays which span the first dimension of the image plane across said second dimension of the image plane;
- Moving each of said plurality of the arrays through a portion of the second dimension of the image plane,
    - o Wherein each sensor array traverses a portion of the image plane exclusive of at least one other sensor array of the plurality of said sensor arrays;

Kawamoto teaches:

- Deploying a plurality of arrays which span the first dimension of the image plane across said second dimension of the image plane (Column 1 lines 41 - 52);
- Moving each of the plurality of arrays through a portion of the second dimension of the image plane (Column 1 lines 41 - 52, Figures 2 - 4),
    - o Wherein each sensor array traverses a portion of the image plane exclusive of at least one other sensor array of the plurality of said sensor

arrays (Figures 2 - 4, For example the first array traverses the portion comprising first line exclusive of the third array; the second array traverses the last line exclusive of the first array; and the third array traverses the last line exclusive of the first array);

Such an arrangement would be advantageous in providing an image sensing device capable of sensing image information at a higher scanning speed and thus for a shorter time period.

Therefore, it would have been obvious to one of ordinary skill in the art to deploy in Mutze a plurality of said high resolution sensor arrays which span the first dimension of the image plane across said second dimension of the image plane as well as move each of said plurality of said high resolution sensor arrays through a portion of the second dimension of the image plane wherein each sensor array traverses a portion of the image plane exclusive of at least one other sensor array of the plurality of said sensor arrays so as to provide a sensing device capable of sensing image information at a higher scanning speed and thus for a shorter time period.

Regarding Claim 13, Mutze discloses:

- Transmitting the digital image data to a storage device (Personal computer for storing or processing the image data, Column 3 lines 50 – 53 "personal computer");

Regarding Claim 14, Mutze discloses:

- Remotely located image is a three dimensional image (image is picked up by the photographic reflex camera, "Spiegelreflexkamera" and would thus, inherently be a three dimensional image);

Regarding Claim 16, Mutze discloses:

- The digital data comprises brightness information and color information (See page 8, lines 8-11 of the translation).

Regarding Claim 17, Mutze and Kawamoto disclose:

- Each sensor array spans a linear dimension of said image plane (Mutze: Figures 1 and 2 item 20 and Figure 2 item 25), (Kawamoto: Figs. 2-4)
- Step of moving comprises:
    - o Linearly moving each of said sensor array through a second dimension of said image plane (Mutze: Figure 2 items 16 - 19, causes the image sensor within the carriage, or saddle, to move linearly along the second dimension through the use of the motor, spindle, saddle and rails);
        - Thereby enabling acquisition of two dimensional image data across the entirety of said image plane.

Regarding Claim 18, Mutze and Kawamoto disclose:

- Each sensor array spans a linear dimension of said image plane (Mutze: Figures I and 2 items 20 and 25), (Kawamoto: Figs. 2-4)

- Step of moving comprises:
    - o Rotating each of said sensor array through a second dimension of said image plane (Mutze: Figure 2 items 16 - 19, causes the image sensor within the carriage, or saddle, to move linearly along the second dimension through the use of the motor, spindle. saddle end rails by rotating the spindle through the force created by the motor, the spindle causing the carriage to move along the second dimension);
- Thereby enabling acquisition of two dimensional image data across entirety of said image plane.

Claims 7 and 8 are rejected under 35 U. S. C. 103 (a) as being unpatentable over Mutze (DE 4100400 A1) in view of Kawamoto et al. (U.S. Patent 5, 920, 063) in further view of Kimura (U.S. Patent 5, 721, 626).

Regarding Claim 7, Mutze discloses:

- Substantially straight line sensor array spanning the first dimension of said image plane (Figure 2, item 20);

Kawamoto discloses a plurality of such arrays.

Mutze fails to specifically disclose:

- Linear actuator for moving said substantially straight line sensor array linearly along the second dimension of said image plane;

Kimura teaches:

- Substantially straight line sensor array spanning the first dimension of said image plane (Figure 3 item 23);
- Linear actuator for moving said substantially straight line sensor array linearly along the second dimension of said image plane (Figure 3 items 25 - 31, Column 2 lines 21 - 52, Column 3 lines 43 - 67);

Such an arrangement would be advantageous in providing a simple control using a stepping motor for high quality image reading with a finely adjustable timing system.

Therefore, it would have been obvious to configure Mutze and Kawamoto to have a linear actuator for moving said substantially straight line sensor arrays linearly along the second dimension of said image plane so as to provide an improved timing system capable of producing high quality images.

Regarding Claim 8, Kimura teaches:

- Electric motor (Figure 3 item 27);
- Belt and pulley system (Figure 3 items 25, 26 and 28 - 31).

Claim 19 is rejected under 35 U. S.C. 10 3(a) as being unpatentable over Mutze (DE 4100400 Al) in view of Kawamoto et al. (U. S. Patent 5, 92 0, 063) in further view of Deangelis et al. (U.S. Patent Publication 2002/0149679 Al).

Regarding Claim 19, Mutze and Kawamoto fail to disclose the step of moving comprising:

- Continuously moving each sensor array through the image plane thereby generating a sequence of digital still images in rapid succession enabling said digital camera to capture moving video image data.

Deangelis teaches:

- Continuously moving sensor array through the image plane thereby generating a sequence of digital still images in rapid succession enabling said digital camera to capture moving video image data (paragraph [0014], [0016], [0017]).

Such an arrangement would be useful in generating video image data as an alternate form of image data capture for recording events in a sequence of data to be played back as video image data or shown as a frame by frame still image.

Therefore, it would have been obvious to one of ordinary skill in the art to include the step of continuously moving sensor array through the image plane thereby generating a sequence of digital still images in rapid succession enabling said digital camera to capture moving video image data so as to provide the option of recording video image data in addition to still image data.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mutze (DE 4100400 Al) in view of Kawamoto et al. (U.S. patent 5,920,063) in further view of Pan (U.S. Patent 5,182,450) in further view of Shimizu et al. (U.S. Patent 4, 579, 122).

Regarding Claim 20, Mutze and Kawamoto fail to disclose:

- Converting light into digital image data is performed at different rates at different points during travel of the sensor array along the second dimension of the image plane.

Pan teaches:

- a driving system for a scanning device which is capable of switching the rate at which the sensor array travels along the image plane and a corresponding exposure time (column 6 lines 6-17).

Such an arrangement would be useful so as to enable being able to freely select a desired resolution (column 6, lines 6-17)

Shimizu teaches:

- the broad teaching of a scanning device that scans at different rates at different points during its travel to scan an image at the center more slowly than at the edges in order to improve the resolution of the data at the center of the image (column 1 line 65 - column 2 line 2; column 2, lines 17-22).

Such an arrangement in Mutze and Kawamoto would be useful in providing increased resolution in the center of the image, which is well known in the art to be the portion most likely to contain the subject.

Therefore, it would have been obvious to one of ordinary skill in the art to design the device of Mutze and Kawamoto so as to convert light into digital image data at different rates at different points during travel of the sensor array along the second dimension of the image plane so as to provide increased resolution at the center of the image, thereby increasing the quality of the portion of the image most likely to contain the subject of interest.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Friday 8:30am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 703-308-4357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian C Genco
Examiner
Art Unit 2615

September 20, 2004

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